

1969

**OPERATING
SUMMARY**

PARIS

***water pollution
control plant***

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JUN 26 1970

ONTARIO WATER
RESOURCES COMMISSION

ONTARIO WATER RESOURCES COMMISSION

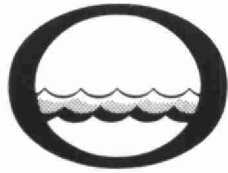
Division of Plant Operations

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Water management in Ontario


Ontario
Water Resources
Commission


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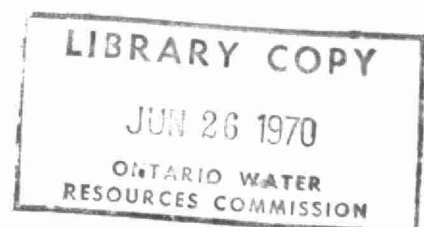
The operating efficiency and financial status of the water pollution control facilities operated for you in 1969 are presented in the following pages.

The regional operations engineer's comments and the statistical data will assist you in gauging the plant's level of performance. A new flow chart and up-to-date design data are also provided.

Various divisions and sections within the Commission have co-operated in providing what we trust is an accurate and concise annual operating summary.


D.S. Caverly,
General Manager.


D.A. McTavish, P. Eng.,
Director,
Division of Plant Operations.



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PARIS
water pollution control plant

operated for

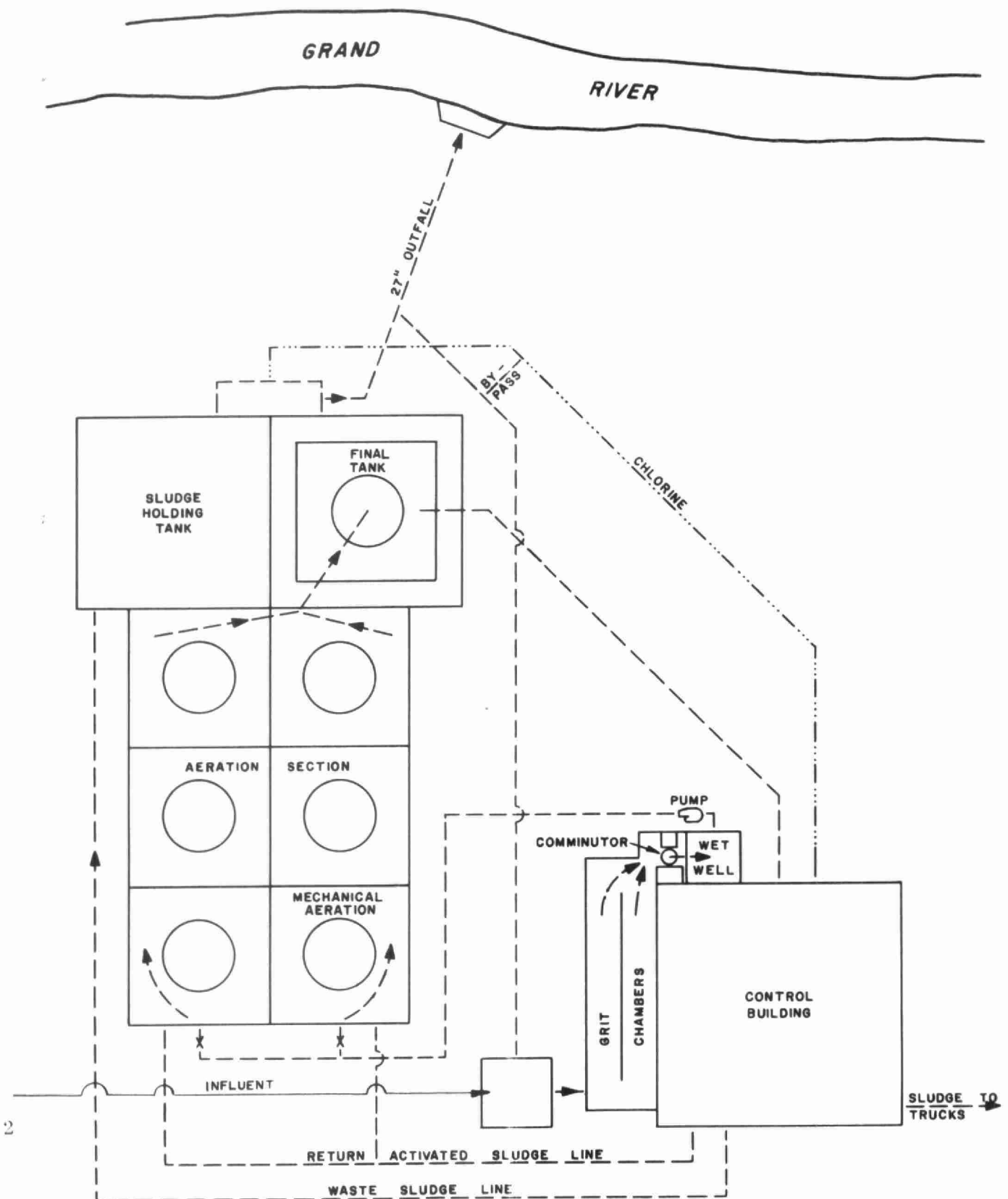
THE TOWN OF PARIS

by the

ONTARIO WATER RESOURCES COMMISSION

1969 ANNUAL OPERATING SUMMARY

PARIS W.P.C.P.
FLOW DIAGRAM



DESIGN DATA

PROJECT NO.	2-0034-59	TREATMENT	Extended Aeration
DESIGN FLOW	0.50 mgd	DESIGN POPULATION	3,600
BOD - Raw Sewage	200 mg/l	SS - Raw Sewage	170 mg/l

PRETREATMENT

Grit Removal

Type: Channel; manually cleaned
Size: Two 25 X 2½ X 2½'

Comminution

Type: Jones & Atwood (1)

RAW SEWAGE PUMP

Type: Worthington
Size: One 335 gpm @ 12' tdh

SECONDARY TREATMENT

Aeration Tanks

Type: Mechanical; single-pass
Size: Two 96 X 32 X 10' (372,000 gal)
Retention: 17.9 hr

Aerators

- Ames Crosta (6)

Secondary Sedimentation

Type: Dorr

Size: Two 36 X 36 X 9' swd
(145,000 gal)

Retention: 3.5 hr

Loading: Surface, 387 gal/ft²/day
Weir, 38,000 gal/ft/day
(one tank)

CHLORINATION

Type: W & T

Size: One 400 lb/day

Chlorine Contact Chamber

- in outfall

OUTFALL

- to Grand River

SLUDGE HANDLING

Holding Tank

- one of the sedimentation tanks, without mechanism, is provided as a holding tank.

'69 REVIEW

GENERAL

During 1969, the Paris water pollution control plant operated well below its design hydraulic capacity. It is expected that flows will increase substantially when certain areas within the municipality are connected to the system in 1970.

An additional pump will be installed in the Willow Street Pumping Station to increase its capacity. The addition of a second raw sewage pump at the treatment plant will provide the operational flexibility lacking in the present system.

The canvas shrouds which were developed at the Paris plant to eliminate the ice buildup on the aerator cones and support bridges are operating satisfactorily.

In the latter part of 1969, an increase in the amount of septic tank wastes hauled to the plant caused operational difficulties and increased sludge haulage costs. Preliminary studies indicated that these wastes can not be efficiently processed without plant equipment modifications or increased sludge haulage costs. A more detailed study is planned for 1970.

PLANT FLOWS and CHLORINATION

The total raw sewage load treated at the plant in 1969 was 97.80 million gallons. This represents an increase of approximately 30% over 1968 flows. The daily average flow for the year was 0.26 mil. gal., or 52% of the plant's design capacity of 0.5 mil. gal. The maximum daily flow of 0.63 mil. gal. occurred in April, while the minimum daily flow of 0.24 mil. gal. occurred during December.

It should be noted that the foregoing daily flow figures do not necessarily reflect the instantaneous peak flows received at the plant during periods of peak industrial and domestic usage. During these periods, the top range of the plant flow meter (1.0 million gallons) is often exceeded for short periods. The effect of these surges on plant operation is considered in later paragraphs.

A decrease in the average raw BOD strength to 198 milligrams per litre in 1969 from an average of 244 mg/l in 1968 is reflected in the chlorine dosage needed to maintain the required residual in the final effluent. In 1969, this dosage decreased to 2.7 mg/l from 3.8 mg/l in 1968.

PLANT EFFICIENCY

Plant removal efficiencies remained relatively unchanged from 1968. The average reductions were 95% and 86% for BOD and suspended solids respectively. With the removal efficiencies remaining constant, the reduction in raw sewage strength was reflected in similar reductions in the content of the final effluent. The average final effluent strengths were 10 mg/l BOD and 17 mg/l suspended solids.

The foregoing figures do not reflect the erratic, momentary lapses in plant efficiency towards the end of 1969. These lapses were the result of a very high suspended solids level caused by septic tank wastes, and of surge flows received during peak periods. This combination of conditions resulted in large sludge losses from the final clarifier for short periods.

As these periods were sporadic and short-term, the plant's overall removal efficiency was not seriously affected.

SLUDGE DISPOSAL

In the past years and in the early part of 1969, the amount of sludge removed from this project was minimal. However, in the latter months of 1969, the amount of sludge hauled increased considerably. To date, attempts to thicken this sludge prior to haulage have proved unsuccessful due to the gelatinous quality inherent in this sludge. Further studies of possible thickening methods are planned for 1970.

CONCLUSIONS

In general, the Paris water pollution control plant operated efficiently well below its design hydraulic capacity. Septic tank wastes could not be treated efficiently with present equipment. Studies of operational methods and equipment were begun to determine the alterations necessary to treat such material.

PROJECT COSTS

NET CAPITAL COST		\$726,125.80
DEDUCT - Payments from Municipalities	\$ 52,170.00	
- Portion financed by CMHC/MDLB	<u>365,238.90</u>	<u>417,408.90</u>
Long Term Debt to OWRC		<u>\$308,716.90</u>
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1969		\$ <u>53,978.42</u>
Net Operating		\$ 16,326.58
Debt Retirement		6,230.00
Reserve		3,701.69
Interest Charged		<u>17,277.87</u>
TOTAL		\$ <u>43,536.14</u>

RESERVE ACCOUNT

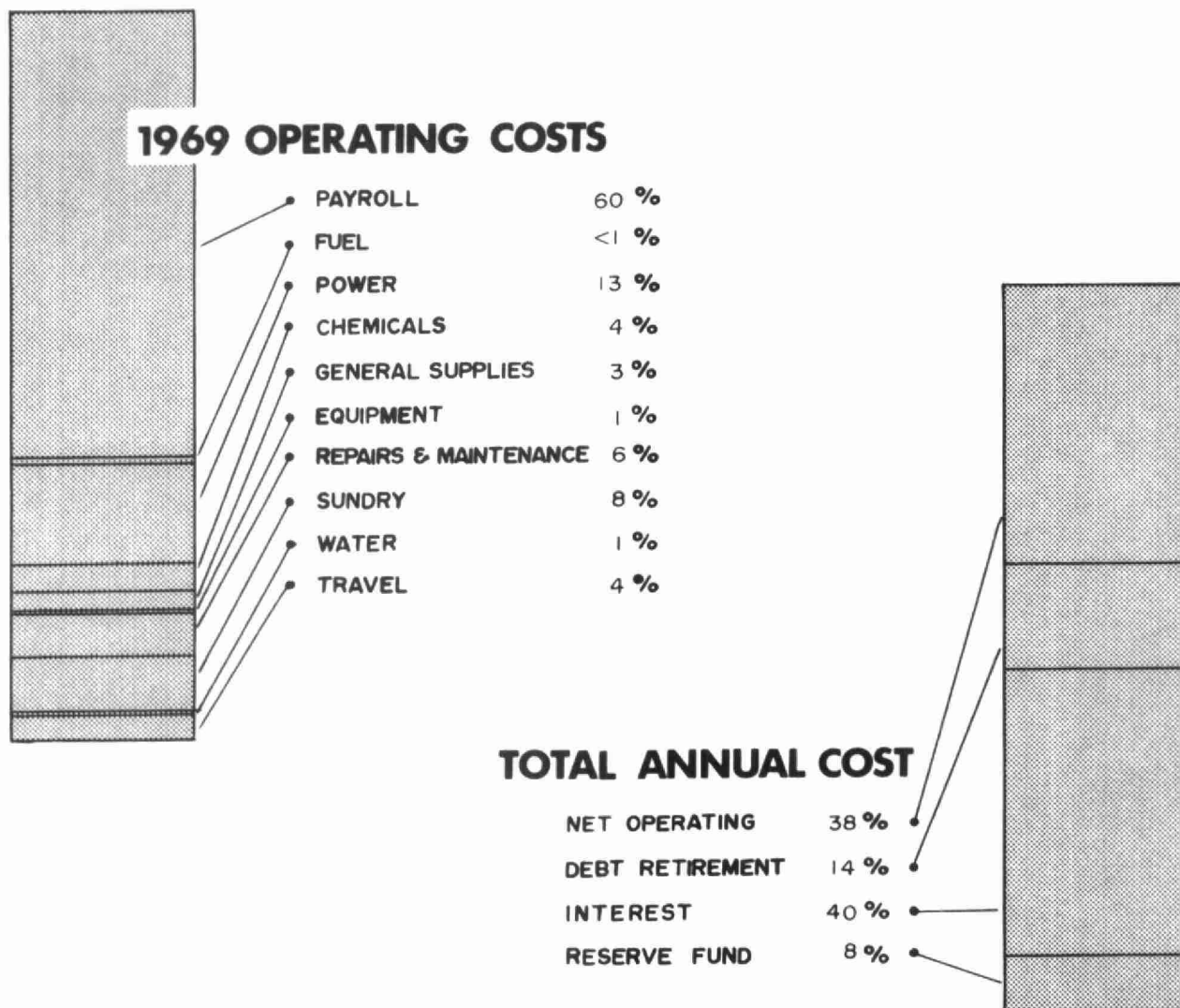
Balance @ January 1, 1969	\$ 27,029.15
Deposited by Municipalities	3,701.69
Interest Earned	<u>1,626.26</u>
	\$ 32,352.37
Expenditures	<u>304.73</u>
Balance @ December 31, 1969	\$ <u>32,661.83</u>

SPECIAL OPERATING AGREEMENT

NET CAPITAL COST	
Long Term Debt to OWRC	\$ Nil
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1968	\$ Nil
Net Operating	\$ Nil
Debt Retirement	Nil
Reserve	278.00
Interest Charged	<u>Nil</u>
TOTAL	\$278.00

RESERVE ACCOUNT

Balance @ January 1, 1969	\$ 743.03
Deposited by Municipalities	278.00
Interest Farned	<u>49.21</u>
	\$1070.24
Less Expenditures	<u>-</u>
Balance @ December 31, 1969	<u><u>\$1070.24</u></u>



Yearly Operating Costs

YEAR	MILLION GALLONS TREATED	TOTAL OPERATING COSTS	COST PER MILLION GAL	COST PER LB OF BOD REMOVED
1965	*149.73	\$ 8,109.72	\$ 54.16	3 cents
1966	*169.98	10,267.83	60.41	4 cents
1967	*183.98	11,463.12	62.30	3 cents
1968	* 75.08	13,098.51	174.46	8 cents
1969	97.80	16,326.58	166.94	9 cents

* Flow meter inaccurate

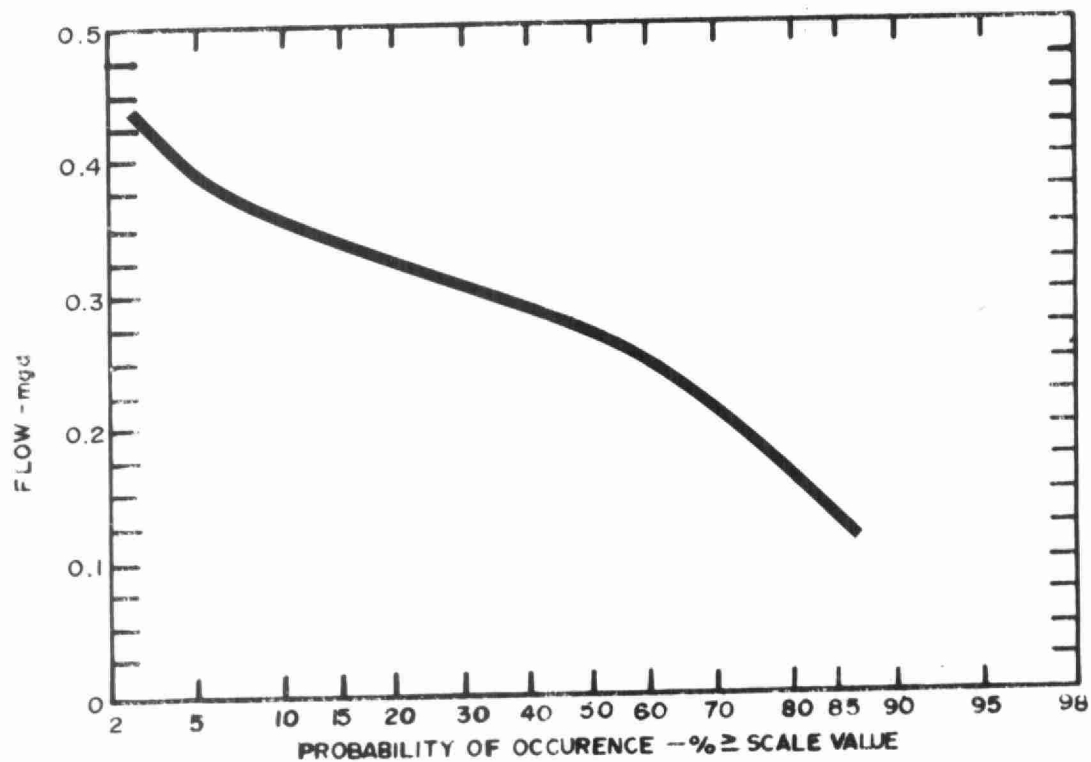
Monthly Operating Costs

MONTH	TOTAL EXPENDITURE	PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICALS	GENERAL SUPPLIES	EQUIPMENT	REPAIRS and MAINTENANCE	SUNDRY *	WATER	TRAVEL
JAN	1087.87	943.93	32.16	-	-	-	2.59	30.19	-	12.55	-	66.45
FEB	1404.26	552.97	162.05	-	176.42	-	98.24	-	75.21	231.00	58.66	49.71
MAR	1214.47	552.97	129.48	-	160.58	238.61	29.06	-	23.24	31.04	-	49.49
APR	1274.45	713.30	129.48	-	141.99	-	19.39	-	-	172.15	41.56	56.58
MAY	1267.40	709.55	129.48	60.75	198.09	-	36.48	-	-	79.32	-	53.73
JUNE	1456.63	584.78	194.62	-	199.31	75.60	55.05	99.95	160.00	15.62	24.00	47.70
JULY	1011.21	591.85	160.75	-	180.21	-	12.54	-	8.35	12.60	-	44.91
AUG	1418.16	849.21	267.51	-	171.48	-	41.58	-	(8.35)	13.15	24.00	59.58
SEPT	1060.99	613.59	129.48	-	185.33	-	45.53	-	27.36	24.93	-	34.77
OCT	1284.92	569.83	166.12	-	206.35	220.50	48.40	-	-	-	25.35	48.37
NOV	1611.66	743.88	129.48	-	179.60	71.40	5.40	-	-	354.76	-	127.14
DEC	2234.56	578.17	96.90	-	349.76	-	51.93	-	741.98	340.29	24.00	51.53
TOTAL	16326.58	8004.03	1727.51	60.75	2149.12	606.11	446.19	130.14	1027.79	1287.41	197.57	689.96

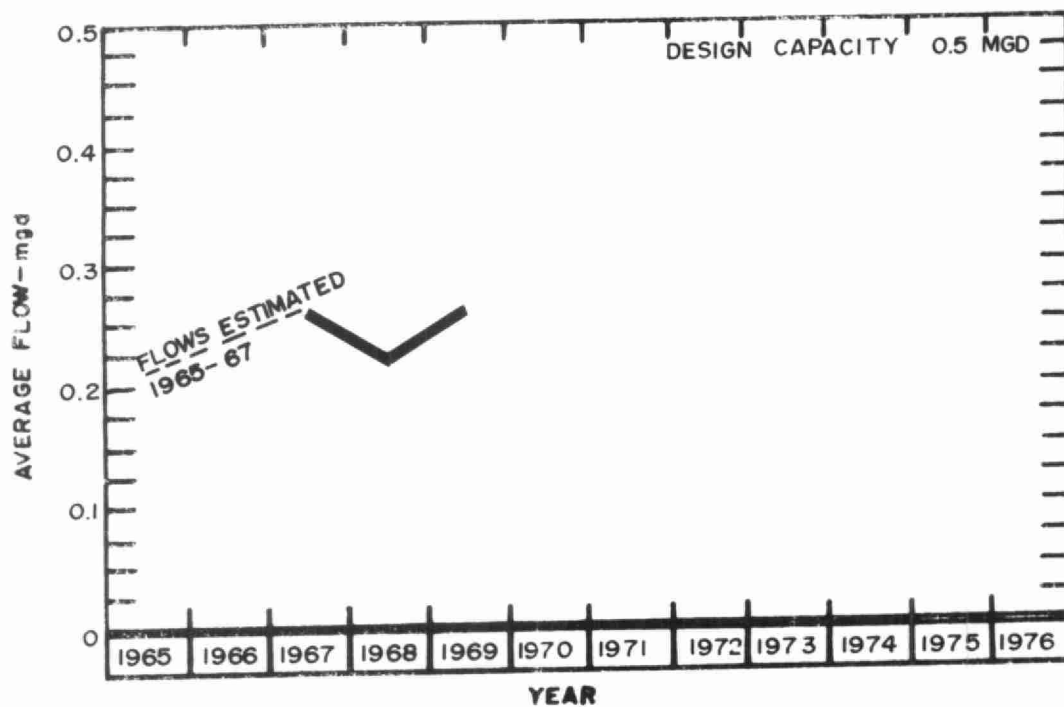
BRACKETS INDICATE CREDIT

* SUNDRY INCLUDES SLUDGE HAULAGE COSTS WHICH WERE \$524.70

PROCESS DATA

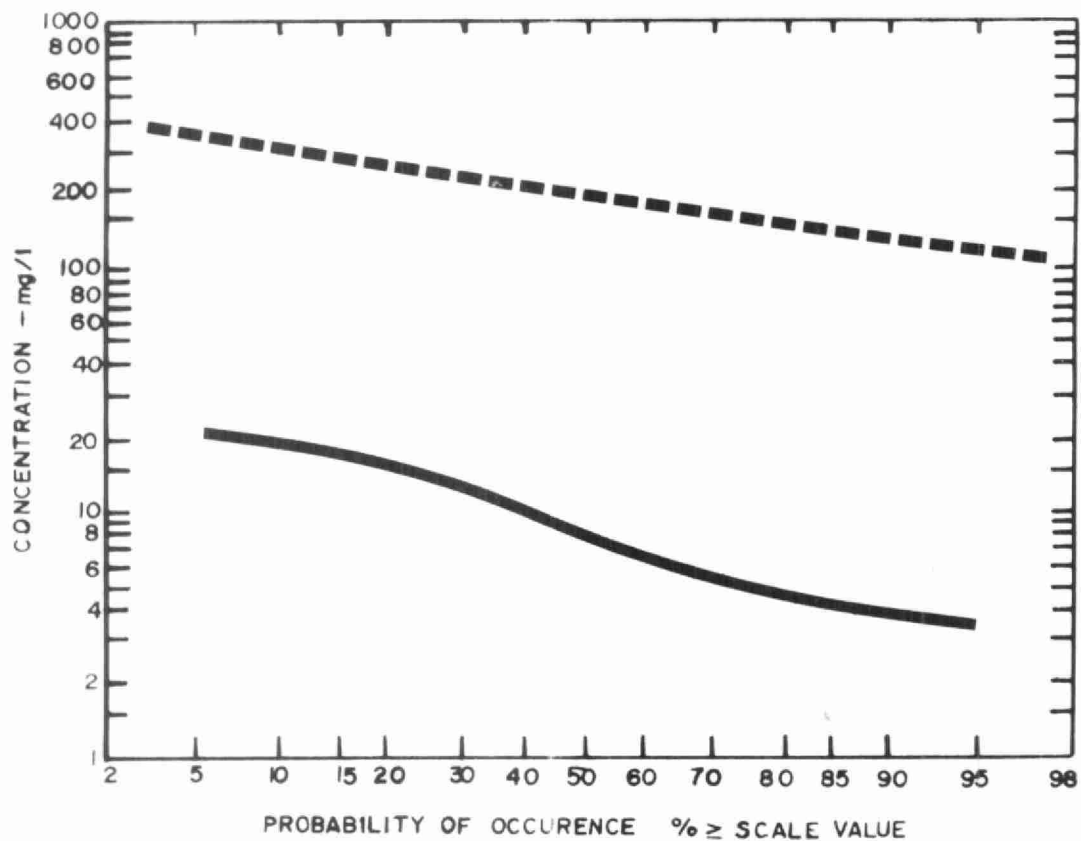


FLOWS

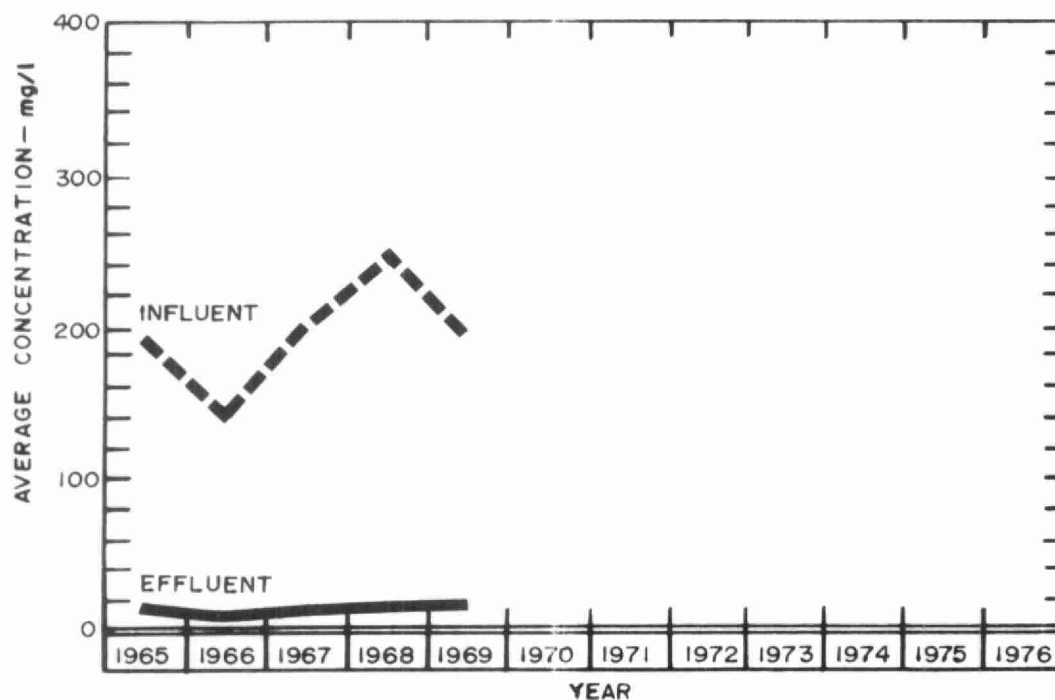


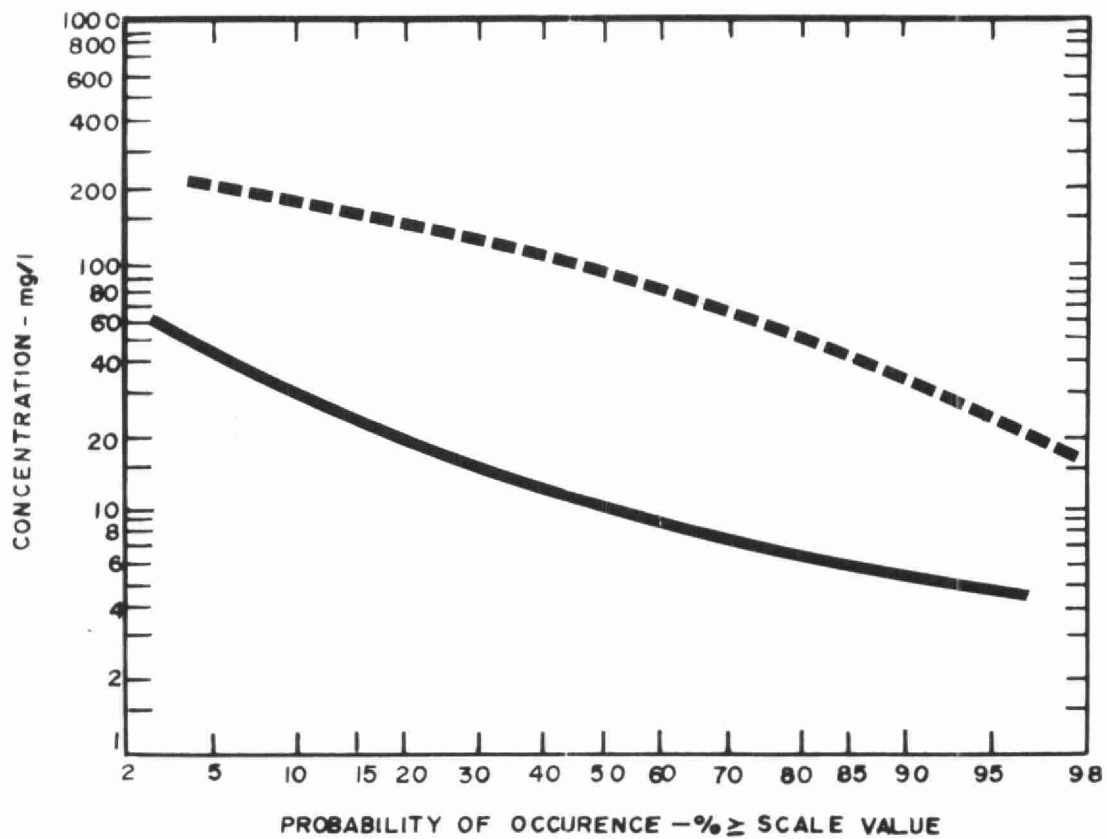
PLANT FLOWS and CHLORINATION

MONTH	TOTAL FLOW mil gal	AVERAGE DAILY FLOW mil gal	MAXIMUM DAILY FLOW mil gal	MINIMUM DAILY FLOW mil gal	CHLORINE USED pounds	DOSAGE mg/l
JAN	7.81	.25	.45	.12	297	3.8
FEB	8.16	.29	.40	.15	249	3.1
MAR	8.89	.29	.42	.14	237	2.7
APR	11.13	.37	.63	.17	229	2.3
MAY	9.76	.31	.49	.17	239	2.4
JUNE	8.44	.28	.50	.11	185	2.2
JULY	6.79	.22	.39	.09	202	3.0
AUG	7.30	.24	.31	.11	183	2.5
SEPT	7.12	.24	.36	.11	186	2.6
OCT	6.91	.22	.33	.11	201	2.9
NOV	8.37	.27	.34	.11	198	2.4
DEC	7.12	.23	.24	.10	201	2.8
TOTAL	97.80	-	-	-	2607	-
AVERAGE	-	.26	-	-	217	2.7

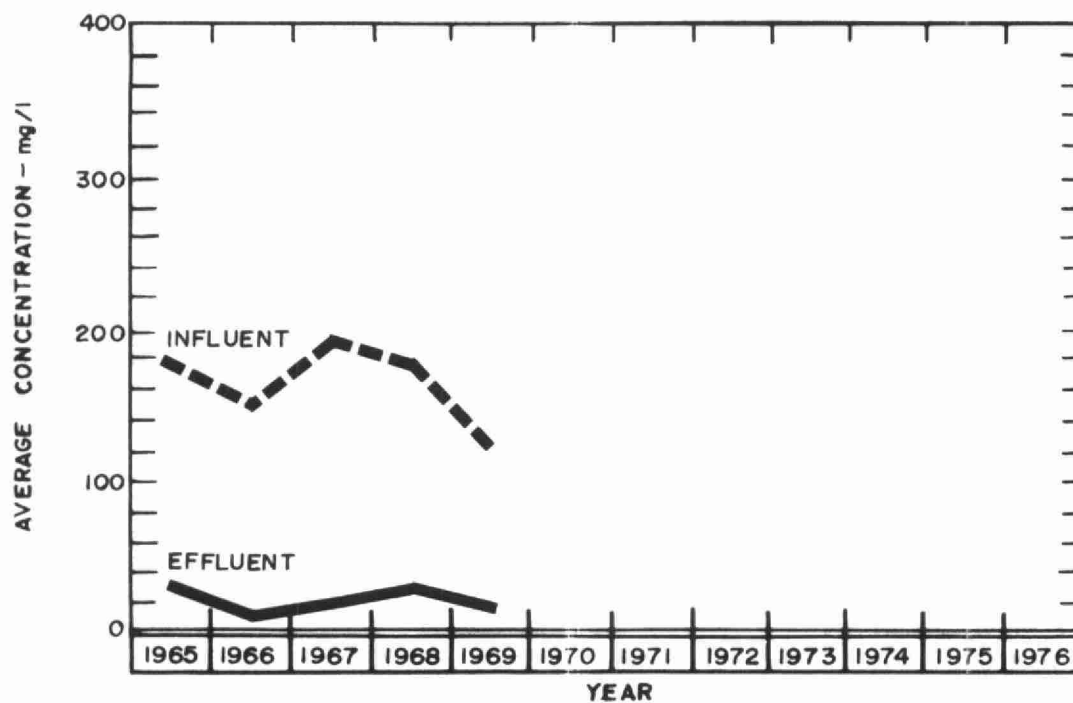


BIOCHEMICAL OXYGEN DEMAND





SUSPENDED SOLIDS



PLANT EFFICIENCY

MONTH	BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				GRIT REMOVAL
	INF. mg/l	EFF. mg/l	REDUCTION		INF. CONCN mg/l	EFF. CONCN mg/l	REDUCTION		
			%	10 ³ pounds			%	10 ³ pounds	cu
JAN	148	10	93	10.8	102	21	79	6.3	0
FEB	260	18	93	19.7	160	35	78	10.2	0
MAR	200	12	94	16.7	106	14	87	8.2	0
APR	120	6	95	12.7	90	12	97	8.7	0
MAY	185	6	97	17.5	116	11	91	10.2	0
JUNE	270	13	95	21.7	180	11	94	14.3	14
JULY	148	7	95	9.6	131	11	92	8.1	0
AUG	215	8	96	15.1	120	12	90	7.9	0
SEPT	200	10	95	13.7	121	7	94	8.1	0
OCT	130	18	86	7.7	84	37	56	3.2	7
NOV	250	7	97	15.1	157	10	93	4.8	8
DEC	250	9	96	17.2	72	21	70	3.6	6
TOTAL	-	-	-	-	-	-	-	93.6	35
AVERAGE	198	10	95	14.8	120	17	86	7.8	9

[illegible]



Water management in Ontario